

**BY ORDER OF THE COMMANDER
AIR COMBAT COMMAND**



AIR FORCE INSTRUCTION 21-103

**AIR COMBAT COMMAND
Supplement**

ADDENDUM J

6 AUGUST 2012

Maintenance

**EQUIPMENT INVENTORY, STATUS, AND
UTILIZATION REPORTING SYSTEM/RC-
135V/W MINIMUM ESSENTIAL
SUBSYSTEM LIST (MESL)**

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This MESL compliments AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*. It applies to all RC-135V/W ACC units, to include deployed locations. This Addendum does not apply to Air National Guard or Air Force Reserve Command units and members. Ensure that all records created as a result of processes prescribed in this publication are maintain in accordance with Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at: <https://www.my.af.mil/afirms/afirms/afirms/rims.cfm>. Contact supporting records managers as required. Send recommended changes or comments on AF Form 847, *Recommendation for Change of Publication*, to the OPR at HQ ACC/A4C, 219 Dodd Blvd, Langley AFB VA 23665.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. Major changes include: Mission columns have been changed. Numerous systems Work Unit Codes (WUCs) have been added or deleted. Remarks are incorporated for each applicable WUC and have replaced notes to better clarify mission capability requirements.

1. General. The MESL is the basis of status reporting IAW AFI 21-103. MESLs lay the ground work for reporting the status of aircraft availability. They list the minimum essential systems and subsystems that must work on an aircraft for it to perform specifically assigned unit wartime, training, test or other missions. MESLs are not comprehensive WUC lists and are not intended to mirror Minimum Equipment Lists. Mission Ready Available (MRA) is used in readiness Status of Resources and Training System (SORTS) reporting only and denotes Mission Capable (MC) aircraft capable of being configured for a contingency mission IAW COMACC OMNIBUS Plan.

1.1. Qualifying notes are used to define aircraft exceptions and help explain complex degraded mission systems.

1.2. Aircraft status for generation and deployment: The goal is to generate or deploy Fully Mission Capable (FMC) aircraft, recognizing status actually achieved may be less than FMC. A Not Mission Capable (NMC) aircraft may be deployed provided it is safe for flight and can be configured and generated to MRA status at an employment site.

1.3. All ACC units will generate, or deploy and regenerate, using ACC MESLs. Major Command differences in MESLs are acknowledged. Upon actual deployment to another MAJCOM theater, the gaining MAJCOM has the responsibility to resource and specify the unit's requirements and resource the differences in support/mission equipment.

1.4. Reading the MESL. A MESL is read by comparing the systems stated by WUC against the Full System List (FSL) and all applicable Basic Systems Lists (BSLs) across the page. Each unit's Design Operational Capability (DOC) statement determines applicability of BSL columns. The aircraft MESLs incorporate all ACC assigned aircraft and therefore it is important to compare only those columns listed in the MESL which are applicable to the unit's assigned aircraft. For example, units with CC (wartime) coded aircraft would determine and report status using only the FSL and BSL columns related to their DOC statement. Units with TF (training) coded aircraft would determine and report status using only the FSL and TNG columns, and units with CB (test) coded aircraft would determine and report status using only the FSL and TST columns. Units with multiple coded aircraft will ensure status is reported using the MESL columns appropriate to the individual aircraft assignment code.

Table 1. RC-135V/W MESL

WUC	Item	Remarks	BSL		
			FSL	RT	RS (8010)
11000	Airframe	None	X	X	X
12000	Fuselage Compartments	None	X	X	X
12BA0	Furnishings Interior	Thermal curtains required.	X		X
13000	Landing Gear	None	X	X	X
13CC0	Anti-Skid Dual Control Valve Mark III	Pilot's or copilot's position must be operational.	X	X	
13EB0	Brake Electrical Unit	Pilot's or copilot's position must be operational.	X	X	
WUC	Item	Remarks	FSL	RT	RS (8010)
13KAC	Rudder Pedal Steering Linear Actuator	Flyable with linear actuator extended. If unable to reset linear actuator electrically, rudder pedal input to nose wheel steering may be reduced.	X	X	X
14000	Flight Controls	None	X	X	
14DAA	Stabilizer Trim Control Switch	Aircraft PMC with at least one unit operational.	X	X	X
27000	Turbofan Power plant (F108)	None	X	X	X
27CA0	Ignition System	Multi-unit system. Aircraft PMC with at least one unit per engine operational.	X	X	X
27CBF	Jet Fuel Starter (JFS)	None	X		
27DAN	Meter-Fuel Flow	Aircraft PMC if one inoperative provided all other indications for affected engine are operating. (Corresponding engine's fuel flow may be displayed on the Control Display Unit (CDU)/Multi-Function Display (MFD).)	X	X	X
27HA0	Fuel and Variable Vane System	Physical monitoring of engine status is required for each inoperable Power Management Control.	X		
41000	Air Conditioning, Pressurization and Surface Ice Control	None	X	X	X
41120	Pressurization	Aircraft PMC if normal air conditioning or alternate pressurization operable. Automatic or manual mode must be operable.	X	X	X
41140	Windshield Rain Removal System	Aircraft PMC with one wiper operational.	X	X	X
4121A	Temperature Selector	Automatic or manual mode must be operational.	X	X	X
41300	LCS (Liquid Cooling System)	One pump must be operational for PMC aircraft.	X	X	X

41350	NESA Anti-ice System	Both Pilot and Copilot #1 and #2 windows must operate.	X	X	X
41430	Electronic Cabinet Blower System	If electronic cabinet cooling overheat light illuminates, fans must be operational to be PMC.	X	X	
42000	Electrical Power Supply	Aircraft is PMC with 2 operational systems.	X	X	X
WUC	Item	Remarks	FSL	RT	RS (8010)
42148	25 Amp Battery TRU 2-165	Battery Charging TR (Main/JFS). Aircraft PMC with at least one unit operational.	X	X	X
44140/ 50/60	Warning Light Assemblies	None	X	X	X
44152	Fuel Low Pressure Warning Light	None	X		
44170	Lighting Systems Components	None	X		
44211	Nose Landing Light	Either the nose landing light or one of the wing landing lights must operate.	X	X	X
44212	Taxi Lights	One taxi light or the terrain clearance light must operate for night operations.	X	X	X
44228	ARR Receptacle Lighting	Required for night A/R only, otherwise aircraft PMC.	X	X	X
44233	Navigation Lights	Must Have both Wing and one operational Tail Navigation Light for PMC condition.	X	X	X
44250	Anti-Collision High Intensity (Strobe) Lights	Upper anti-collision strobe light must be operable for PMC condition.	X	X	X
44263	Wing Landing Lights	Either the nose landing light or one of the wing landing lights must operate for PMC condition.	X	X	X
44266	Wing Landing Light (Retractable)(Terrain)	One taxi light or terrain clearance light must operate for night operations.	X	X	
45000	Hydraulic and Pneumatic Power Supply	None	X	X	X
46000	Fuel System	None	X	X	X
46117	Transfer Valve #10 (No. 1 Reserve)	PMC if fuel is not required for flight and valves are verified closed.	X	X	X
46283	Transfer Valve #17 (No. 4 Reserve)	PMC if fuel is not required for flight and valves are verified closed.	X	X	X
46316	Override Pump	Not required if center wing fuel is not required for mission accomplishment.	X	X	X
46628/ 48/56	Engine Manifold Valves	Aircraft PMC if one valve failed in the OPEN position. (Pull circuit breaker.)	X	X	X
WUC	Item	Remarks	FSL	RT	RS (8010)
469A0	Air Refueling Receiver Electrical System	As required for mission accomplishment.	X	X	X

47000	Oxygen System	None	X	X	X
47130	Oxygen Regulators	All occupied positions must have an operable regulator.	X	X	X
47200	Oxygen Quantity Panel Assembly (RC/TC-135)	Totalizer may be inoperable as long as individual converter quantities are readable. System is PMC. Supply low caution light not required.	X	X	X
49000	Miscellaneous Utilities	Required for safety of flight and sufficient for flight monitoring, and crew warning. PLZT must be operable for 8010.	X	X	X
51000	Instruments, General	For instruments with both analog and digital indication, either indication for PMC condition.	X	X	X
51A00	Flight Director System (RGA-Rotation Go-Around)	May be inoperable as long as Aircraft Performance Computer system is operational. Must be sufficient at pilot or copilot positions to monitor aircraft position, performance, and maintain control for PMC condition.	X	X	X
51BD0	Angle of Attack (AOA) Indication	Pilot's or copilot's position must be operational. Operating AOA must have operational anti-ice on associated transmitter for PMC condition.	X	X	X
51BE0	Angle of Attack Transmitter	Pilot's or copilot's position must be operational. Operating AOA must have operational anti-ice on associated transmitter for PMC condition.	X	X	X
51K00	Digital Air Data Computer (ADC) System	For PMC condition: ADC1 or ADC2 may be inoperative provided that the standby ADC is fully operational. The FCAS ADC must be operational.	X	X	X
51L00	Flight Data Recorder	Only required when flying with PAX.	X	X	
51P00	Electronic Flight Instrument System (EFIS)	Aircraft PMC with loss of one Multi-Function Display at either pilot or copilot position provided the navigator's Keyboard Display Unit (KDU) is operational. (Navigator KDU can display either MFD or PFD mode through selection of the MFD/PFD mode switch.)	X	X	X
WUC	Item	Remarks	FSL	RT	RS (8010)
51R00	Electronic Standby Indicating System (ESIS)	For PMC condition: ADC1 or ADC2 may be inoperative provided that the standby ADC is fully operational. The FCAS ADC must be operational.	X	X	X
51S00	Wind Shear/SCAT System (RC/TC-135)	None	X	X	
51SAA	Aircraft performance Computer	Aircraft PMC with at least one unit operational.	X	X	X
51W00	Fuel Quantity Indicating System (RC/TC-135)	Aircraft PMC with reserve tank indication inoperative as long as tank quantity can be verified prior to takeoff.	X	X	X
51WAA	Signal Conditioning Unit (SCU)	Tank quantities must be manually entered in mal-functioning tank to get accurate gross weight and CG for PMC condition.	X	X	X
51Y00	Angle-Of-Attack Speed Indexer Lights	None	X		

51113	Accelerometer (G Meter)	None	X		
5118A	Altimeter (NAV's)(Reduced Vertical Separation)	None	X		
5118D	Altitude Alerter	Aircraft PMC with at least two operational systems.	X	X	X
51310	Engine Instruments	Must have analog or digital.	X	X	X
51421	LH Flap Position Indicator	PMC conditions: one flap indicator may be inoperative provided: (1) flaps operate normally; (2) verification of flap position can be made prior to each take-off and landing.	X	X	X
51431	RH Flap Position Indicator	PMC conditions: one flap indicator may be inoperative provided: (1) flaps operate normally; (2) verification of flap position can be made prior to each take-off and landing.	X	X	X
51840	Free Air Temperature/Outside Air Temperature (OAT) Gauge	Aircraft PMC if temperature available on Altitude Alerter.	X	X	X
51851	Cabin Altitude Indicator	PMC if sufficient to maintain cabin altitude below 12,000 feet.	X	X	X
WUC	Item	Remarks	FSL	RT	RS (8010)
51854	Cabin Altitude Gauge (Nav Station)	PMC condition: required only if operating via manual cabin pressure control. Gauge is not required if the cabin pressure warning function of the Altitude Alerter is operational.	X	X	X
52A00	AN/ASW-48 Digital Autopilot	Roll, pitch and altitude hold required for PMC.	X	X	
52AK0	Vertical Gyro	Aircraft PMC as long as AN/ASN-121 provides attitude reference for autopilot system.	X	X	X
52200	Flight Control Augmentation System/ Engine Failure Assist System (EFAS)	None	X	X	X
52410	N-1 Compass	None	X	X	X
61D00	HF Communications Set	One required for oceanic operations.	X	X	X
62400	AN/ARC-210 VHF/UHF Radio	FD-1 or FD-3 must be operational for PMC.	X	X	X
635A0	UHF ARC-171(V)	None	X	X	X
64160/81FE0	Interphone System AN/AIC-18; FORCE Interphone BL 10	All crewmembers must be able to transmit and receive on interphone. CALL function must be operable.	X	X	X
65000	Identification Friend or Foe (IFF) System	None	X	X	X
66A00	Emergency Avionics System (EAS)	None	X		
68000	SATCOM	PMC condition if HF Communications are fully operational. (As mission requirements dictate).	X	X	X

69900	Wideband Secure Voice KY-58 System	Multi-unit system. Aircraft PMC with at least one unit operational.	X	X	X
71000	Radio Navigation System	None	X	X	X
71AK0	Navigation Direction Finder	Multi-unit system. Aircraft PMC with at least one unit operational.	X	X	X
WUC	Item	Remarks	FSL	RT	RS (8010)
71B00	VHF (Very High Frequency) Omni-directional Radio-range (VOR)/Locator Beacon (LOC)	Multi-unit system. Aircraft PMC with at least one unit operational.	X	X	X
71Z00	AN/ARN-118 Tactical Airborne Navigation (TACAN)	Multi-unit system. Aircraft PMC with at least one unit operational.	X	X	X
72000	Radar Navigation System	None	X	X	X
72BA0	AN/APN-242 Radar	Minimum of one RT required for PMC condition.	X	X	X
72V00	AL-101 Radar Low Range Altimeter	Pilot's system must be operational for PMC.	X	X	X
72Z00	AN/APN-59	Minimum of one RT required for PMC.	X	X	X
72700	Flight Management System (FMS)	Must have operational NCU and CDU for PMC.	X	X	X
727AA	Control Display Unit (CDU)	Pilot or Copilot CDU and Navigator's CDU must be operational for PMC.	X	X	X
727AB	Navigation Computer Unit (NCU)	Minimum of one NCU operational for PMC.	X	X	X
727AD	Data Transfer Unit	None	X		
727B0	Embedded GPS/Inertial Navigation (LN-100/LN-120)	None	X	X	X
73000	Enhanced Traffic Collision Avoidance System/Vertical Velocity Indicator (TCAS/VVI)	Minimum of one system operational for PMC. TCAS information must be available on one VSI provided it's also available on pilot's/copilot's MFD.	X	X	X
76000/ 84LA0/ 81LA0	AEELS/CORVUS	PMC if manual ELINT functional.	X	X	X
76C00/ 84LE0/ 81LEE	QRC501-300 / HAWK Hi-Band DF	None	X	X	X
WUC	Item	Remarks	FSL	RT	RS (8010)
76CJ0/ 84LED/	QRC501-312A / HAWK Low-Band DF	Mission and AOR will impact system status.	X	X	

81LE0					
76F00	Test Equipment	None	X		
76L00/ 84CE0/ 81CE0	Blanking System	None	X		
76100/ 83LE0/ 81ZN0	HAWK Receiver	NMC if Versanet is down	X	X	X
761A0/ 84TAL	IP-109	PMC if at least one operational.	X	X	X
761B0/ 84TAM/ 81ZNB	KY-102 Keyboard Control	Multi-unit system. Aircraft PMC with at least two units operational.	X	X	X
761C0/ 84TAK/ 81ZNA	C-144 RCU (Resource Control Unit)	Multi-unit system. Aircraft mission capable with at least two units operational.	X	X	X
761D0/ 84LEB/ 81ZNE	CY-128 Demodulator Chassis	PMC if 4-6 tuners and corresponding demods operational.	X	X	X
761F0/ 84LEA/ 81ZND	Tuner/MD-128 Demodulator	PMC if 4-6 tuners and corresponding demods operational.	X	X	X
76200/ 83LD0	RF/IF Distribution (HAWK)	PMC if aircraft has one fully operational side.	X	X	X
76300/ 84FHB/ 81KNB	IF and Video Distribution	None	X	X	X
76400/ 84LF0	Pulse Analysis System (PAU)	PMC if at least one operational.	X	X	X
81ZS0	Digital Signal Analyzer	PMC if one operational.	X	X	X
765E0/ 84LC0/ 81ZE0	ESP (ELINT Signal Processor)	None	X	X	X
84AA0/ 81NC0	Operator Work Stations (OWS)	PMC if 1-7 OWSes down. NMC if more than 7 OWSes down. NMC if 2 or more RAVEN OWSes down.	X	X	X
WUC	Item	Remarks	FSL	RT	RS (8010)
84C00/ 81R00	Radio Frequency Distribution (RFD)	PMC if aircraft has one fully operational VHF/UHF/SHF side.	X	X	X
84CB0/ 81RE0	VHF/UHF RFD	PMC if aircraft has one fully operational side; Omni INOP below 60 MHZ-PMC; Omni INOP above 60 MHZ - NMC.	X	X	X
84CC0/ 81RJ0	Super High Frequency (SHF) RFD	PMC if aircraft has one fully operational side.	X	X	X
84CD0/81 RNO	Steerable Beam Antennas	PMC with loss of any complete steerable beam; PMC with loss of more than 50% decks on any steerable beam.	X	X	X

84F00/ 81F00	Modular Devices/Signal Collection Receivers	PMC if 20%-50% of any spectrum receivers down. NMC if >50% any spectrum receivers down.	X	X	X
81NW0	Dual Multithreaded Collection Asset (DMCA)	Loss of 1-3 DF apps - PMC; Loss of 1 BF app - PMC; Loss of 1 CC/FDM app - PMC; Loss of 1 SSS app - PMC; Loss of 1-2 BSS apps - PMC (See Vol VI Table 45-1)	X	X	X
84HBA/8 1NPO	Track Management Processor (TMP)	PMC if associated BP in use as TMP.	X	X	X
84HBB/81 NF0	Backup Processors (BP1/2/3/4/5/6)	PMC if any BP INOP and all other supported processors operational.	X	X	X
84HH0/81 HH0	Joint Signal Processor (JSP)	If RSTA operational, JSP PMC.	X	X	X
84HBB/81 HC0	Mission Database Processor (MDP)	PMC if associated BP running as MDP.	X	X	X
84TB0/ 81ACK	Reconnaissance Surveillance Targeting Acquisition (RSTA)	If JSP operational, RSTA PMC. Mission and AOR will impact system status.	X	X	X
84HG0/81 HG0	Hardware Control Processor System (HCP)/(RIO for BL8/9)	PMC if associated BP running as HCP.	X	X	X
84MB0/81 ABY	Maintenance Processor (MP)	PMC if backup in use on BL9. PMC if nonoperational on BL10.	X	X	X
84MC0	VXI 1 PROCESSOR (MX Processor BL9)		X		
84NAE/ 81NY0	MAINTENANCE PC (MPC)	PMC if Pegasus is operational (BL9); PMC if MP in use as Maintenance PC backup on BL10.	X	X	X
WUC	Item	Remarks	FSL	RT	RS (8010)
84P00/ 81PA0	Environmental Control System (ECS)	PMC with loss of ECP or all sensors. NMC with loss of system control or power supply.	X	X	X
84V00	JSS (Joint Search System)	None	X	X	X
84VB0/ 81VB0	BSS (Background Spectral Search)	PMC if 1 BSS Processor down. PMC if 2 or more threads on one tuner are down. NMC if 2 processors are down. NMC if 2 or more threads on 2 tuners are down.	X	X	X
84VC0/ 81VC0	BF/DF (Beamformer/Direction Finding)	PMC if 1 BF/DF Processor down. PMC if 2 or more channels on one tuner are down. NMC if 2 BF/DF processors are down. NMC if 2 or more threads on 2 tuners are down.	X	X	X
84FG0/ 81FG0	Audio/Video Record Systems	PMC if 20%-50% record capability down. NMC if >50% record capability down. PMC if at least 1 CDARS/AP side operational.	X	X	X
84S00/ 81GE0	Digital Data Distribution	PMC if 1 supervisor module down. PMC if 1 power supply down. NMC if LAN Switch fan tray down.	X	X	X
81GEL	IOLAN (BL10)	NMC if any IOLAN down except IOLAN #7. PMC if IOLAN #7 down.	X	X	X
84T00/ 81T00	Special Signals	Requires 1 fully operational Special Signals Suite. PMC if 1 SSPC/Falcon PC down.	X	X	X

84VCJ/ 81NX0	TNG (Theater Net-centric Geo-location)	Mission and AOR will impact system status	X		
84W00/81 W00	External Communications	PMC if any UHF radio down. NMC if UHF 4 and 8 and/or 10 down. NMC if UHF 3 and 5 down. NMC if ESW 127 down.	X	X	X
84WL0/81 WL0	Integrated Broadcast Service (IBS)	Mission and AOR will impact system status.	X	X	X
84WQ0/8 1WQ0	AIRCOMTERM (ACT)	NMC if ACT or TCP or AIRS Control Processor (ACP) or KIV-7M down.	X	X	X
84WP0	TADIL	Mission and AOR will impact system status.	X	X	X
84WK0/8 1JN0	JTIDS (MIDS/JTRS BL10)	Mission and AOR will impact system status.	X	X	X
84WN0/8 1N30	Network Centric Collaborative Targeting (NCCT)	None	X		
WUC	Item	Remarks	FSL	RT	RS (8010)
84WR0/8 1WR0	Narrowband Reachback (NABRE)	PMC if NABRE down with ACT operational. Mission and AOR will impact system status.	X	X	X
84Z00/ 81Z00	QRC Assets	Mission and AOR will impact system status.	X	X	
84HT0/ 81NH0	DRT	Mission and AOR will impact system status.	X	X	
84WJ0/ 81WJ0	HOOKDET	Mission and AOR will impact system status.	X	X	
84HL0/ 81NN0	Pulse Link Processor (PLP)	PMC if less than 3 receiver channels operational. Mission and AOR will impact system status.	X	X	X
84HD0/81 HD0	ES931	Mission and AOR will impact system status.	X	X	
84HE0/ 81HE0	FIREHAWK	Mission and AOR will impact system status.	X	X	
84LD0/ 81LD0	Digital Receiver Processor (DRP)	PMC if less than 3 Spider 80's operational.	X	X	
81KW0	Modern Signal Search (MSS)	PMC if 20%-50% of MSS channels down. NMC if >50% of MSS channels down.	X	X	X
81J00	Collateral Domain Processors	PMC if associated BP running as a Collateral Domain Processor.	X	X	X
81KU0	HF Signal Search (HSS) / HF Activity Processor (HAP)	PMC if 20%-50% of HSS/HAP channels down. NMC if >50% of HSS/HAP channels down.	X	X	X
84FL0/ 81NB0	KESTREL	PMC if 1 Kestrel Processor down. Mission and AOR will impact system status.	X	X	
84SG0/81 NT0	PAN Display Processor (PDP)	None	X	X	X
81NQ0	Hot Link Processor (HLP)	PMC if associated BP running as HLP.	X	X	X

84WAL/8 1WRZ	KY100	PMC if KY100 #1 or #2 down. NMC if both KY100 #1 and 2 down.	X	X	X
91000	Emergency Equipment	None	X	X	X
96110	Personnel Equipment (Oxygen)	None	X	X	
NOTES: 81XXX series WUCs		denote BL10			

GILMARY M. HOSTAGE III, General, USAF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*, 26 January 2012

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*, 22 September 2009

Abbreviations and Acronyms

ACC—Air Combat Command

BP1/2—Backup Processor 1/2

CG—Center of Gravity

ESIS—Electronic Standby Indicating System

FCAS—Flight Control Augmentation System

HQ—Headquarters

MAJCOM—Major Command

OPR—Office of Primary Responsibility

PFD—Primary Flight Display

PLZT—Polarized Lead Zirconium Titanate

PMC—Partial Mission Capable

RS—Reconnaissance, Strategic

RT—Reconnaissance, Tactical

SCAT—Speed Command of Attitude and Thrust

TNG—Training

TST—Test